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SYSTEM OF CONSULTATIONS

Programme of Consultations for the biennium 1994-1995

Proposals by the Director-General

Summary

Submits to the Board for approval proposals for six Consultations to be held in the biennium 1994-1995

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Introduction

1. The Board at its sixth session had before it document IDB.6/6 in which the Director-General had proposed three topics for possible inclusion in Consultations to be held in 1994-1995. In its decision IDB.6/Dec.5, the Board decided to postpone consideration of possible topics for the 1994-1995 Consultation until its ninth session while asking the Director-General to consult with regional groups as to their priorities regarding the choice of subjects for Consultations in their respective regions.

2. The present document is submitted pursuant to that decision as well as to General Conference resolution GC.3/Res.2, paragraphs 3 and 4, which established the modalities and criteria for the selection of topics for Consultations based on the evaluation of the System of Consultations and on the recommendations of the Director-General contained in document GC.3/20. The preparation of the document has furthermore been guided by the requirements set out in paragraphs 12 and 20 of the rules of procedure of the System of Consultations (PI/84). The proposals made in the present document supersede those submitted to the Board at its sixth session in chapter II of document IDB.6/6.

I. PROPOSED CONSULTATIONS FOR THE BIENNIUM 1994-1995

3. The selection of the following topics for Consultations for the biennium 1994-1995 has been guided by:

(a) The medium-term plan of UNIDO, 1992-1997 (PBC.7/17);

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(b) The recommendations of the evaluation of the System of Consultations;

(c) Priorities of developing countries as identified in previous Consultation meetings;

(d) Informal contacts with the regional groups; and

(e) Consultations with other parts of the Secretariat.

4. In accordance with the instructions by the Board and the findings of the evaluation of the System of Consultations, emphasis is increasingly being placed on the organization of regional Consultations. Also, in order to ensure concrete results at the global Consultations suggested below, efforts were made to narrowly define the topics for presentation at those Consultations.

5. As a result, a list of eight Consultations including three Global Consultations were drawn up as follows:

- Regional Consultation on the building materials industry in Africa
- Regional Consultation on the iron and steel industry in Africa
- Regional Consultation on the impact of structural adjustment policies and privatization on small- and medium-scale enterprise development in Africa
- Regional Consultation on the leather and leather products industry in Asia and the Pacific
- Regional Consultation on downstream petrochemical industries in Latin America and the Caribbean
- Consultation on consultancy engineering services
- Consultation on environmental management/ cleaner technologies in the metallurgical industry
- Consultation on human resources development focusing on technological changes in industry

6. The mandate of the System of Consultations is to conduct six Consultations in any given biennium. Therefore the eight proposals were reduced to six as a result of the briefing of the Permanent Missions to UNIDO on 10 March 1992 as well as further in-house discussions. The following six Consultations, two global and four regional, are proposed to the Board for the biennium 1994-1995.

Regional Consultation on the building materials industry in Africa

7. The Second Consultation on the Building Materials Industry, which was held at Athens, Greece, in November 1991, 1/ recognized that the developing countries in general have not been able to satisfy the increasing demand for housing, social structures and institutional buildings. In the African context the problem is acutely felt by many Governments owing to economic difficulties that have hindered the development of this industry despite efforts made to overcome the constraints faced by those countries.

8. The Consultation also recognized that the persistent shortcomings in the production of building materials in many countries of the developing world is a serious impediment in improving housing conditions for the people. The problem is particularly severe in the urban areas as opposed to rural areas where the population has more easy access to natural inputs such as clay, stones and vegetal materials for their building needs.

9. As a result of the discussions at the Second Consultation on the Building Materials Industry, it was strongly felt that the African countries - and particularly those located in the sub-Sahara region - are particularly sensitive to the building materials subsector. Indeed, most of the delegates from the region highlighted that concrete action should be taken to address the issue as a matter of fundamental priority for Africa. The tenth meeting of the Conference of African Ministers of industry held in July 1991 at Dakar, Senegal, also gave prominence to building materials. That meeting selected the building materials industry as the central theme for the Third Africa Industrialization Day which will be celebrated at the end of 1992 within the context of African economic cooperation and integration. 2/

10. The development of this industrial subsector in Africa faces many constraints that stem from external and internal factors as a consequence of which the supply of basic materials is offset by increasing reliance on imports. In view of the current world economic situation, low return on commodity exports in addition to the high cost of borrowing capital for developing their industry, the developing countries in general - and particularly those in Africa - have the paramount necessity to rely primarily on the production of building materials through a coherent exploitation of their natural resources and availability of raw materials.

11. The exploitation of the natural resources is handicapped by the lack of industrial policy initiatives, inadequate national housing policy in addition to the lack of housing assessment and infrastructural needs in conjunction with effective production and supply capabilities. Inadequate transfer of technology packages, poor managerial skills to operate the plants efficiently and high operating costs deriving from, among others, the waste of energy in the production process due to outdated machinery and equipment are other key elements which are compounding the difficulties.

12. Both technical and financial assistance are needed to assist the developing countries in Africa in their efforts to tackle these issues and promote sustainable industrialization and competitiveness. To meet the challenge, innovative approaches would be needed from Governments, producers, decision makers, professionals and the main actors concerned with the promotion of the building materials industry in Africa.

13. In addition to human resources development and the promotion of clean and energy-efficient technologies of production, the Consultation

should give emphasis to the strengthening of the small-scale production of the low-cost building materials subsector. Reinforcing the linkages between the small-scale and the modern sectors of the building materials industry would foster a more balanced growth and a more appropriate response to market needs within the African context.

14. On the strength of this background and based on the fact that many countries in the region share comparable socio-economic characteristics and industrial capabilities, the regional Consultation for Africa is proposed with the view to identify the basic problems of the sector and to provide concrete solutions within a coherent strategy framework. The Consultation should concentrate its deliberations on how to best utilize the local resources and develop the building materials industry in the region in order to respond to the increasing needs for housing and shelter.

15. One of the main objectives of the Consultation will consist of identifying areas of assistance required to develop the industry through cooperation between the donor countries, the developing countries and the international organizations.

16. In view of the above and without prejudice to the conclusions and recommendations that might be reached by the preparatory activities, it is suggested that the following issues could be considered during the Consultation:

(a) Measures to improving cost-effective production of building materials, including new technologies to maximize the use of locally available raw materials;

(b) The formulation of appropriate strategies for quality improvement, energy savings, performance and growth of the low-cost building materials sector; and

(c) Strategies and policies for promoting and developing the building material industries in the region for closer cooperation between public and private sectors.

Regional Consultation on the iron and steel industry in Africa

17. The importance of the iron and steel industry in the context of Africa's economic development derives in part from its broad scope for forward and backward linkages to other industries and economic sectors, and in part from its potential for consuming local natural endowments of minerals, energy, and other resources. Furthermore, steel consumption per capita is recognized as a rough index of the level of industrial development and economic advancement. A high per capita steel consumption generally suggests vigorous productive activities especially in those economic sectors linked to manufacturing such as agricultural machinery, construction industry and other related domestic capital goods sectors. These are among the considerations that have led several African countries to place top priority on the development of a viable domestic iron and steel industry.

18. Although Africa's percentage share of the crude steel production of the world had generally increased during the 1980s, this amounted to only 0.56 per cent in 1987, equivalent to 4.1 million tons.* Most of this output (3.2 million tons) came from three North African producers - Algeria, Egypt and Tunisia. In fact, these countries, along with Nigeria and Zimbabwe, accounted for over 90 per cent of the production in 1987.

19. Because of the disparity between local iron and steel production and apparent consumption (0.56 per cent and about 1.50 per cent respectively), Africa has depended heavily on imports to meet its steel requirements. In 1987, imports amounted to 5.8 million tons. Given the prevailing shortage of foreign exchange, it is not surprising that steel imports have been declining, with concomitant adverse effects on general industrial activity and development. The import figure for 1990 was only 3.5 million tons.

20. As of 1988, there were 69 installed steel plants in Africa, with Nigeria and Kenya boasting the largest numerical concentrations, with 21 and 10 respectively. The aggregate crude steel-making capacity was 10.4 million tons per year, of which 6.6 million tons was in North Africa. West and Eastern/Southern Africa contributed 2.6 million and 1.0 million tons of capacity respectively. The entire capacity for flat steel production (equivalent to 2.99 million tons per year) is concentrated in North Africa. Thus, sub-Saharan Africa is totally dependent on imports for all its flat steel products demand, accounting in some cases for over 50 per cent of total national demand.

21. Whereas Africa, in the world context, is not a major producer of finished steel, it is an important source of steel-making raw materials. Africa (including South Africa) accounts for about 7 per cent of the world's iron ore reserves of 210,000 million tons. The largest reserves occur in Algeria, Côte d'Ivoire, Liberia, the Libyan Arab Jamahiriya, Mauritania, Sierra Leone, Zaire and Zimbabwe. Notwithstanding these extensive resources, only a few deposits are actually exploited. Currently, only Angola, Algeria, Egypt, Liberia, Mauritania, Morocco, Tunisia, and Zimbabwe are among the world's producers of iron ore.

22. With respect to coal, Africa accounts for about 6 per cent of the world's accessible reserves, equivalent to 34,600 million tons. The bulk of these reserves occurs in southern Africa, with Botswana and Zimbabwe accounting for the largest deposits. Other significant reserves occur in Algeria, Egypt, Morocco, Mozambique, Nigeria, Swaziland, the United Republic of Tanzania, and Zambia.

23. The growth of Africa's iron and steel industry in the 1990s and beyond in a self-reliant and competitive manner would call for measures in several directions, including rehabilitation and diversification of existing capacities, broadening of product mix regional cooperation, manpower

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* Statistics pertaining to the iron and steel industry in Africa were obtained from Industry and Development: Global Report 1989/90 (UNIDO publication, Sales No.: 89.III.E.5) and from Atlas of African Industry: Iron and Steel, UNIDO, 1989.

development initiatives and rational exploitation of existing natural resources. The purpose of the proposed Consultation is to provide a regional forum for in-depth discussions of the sector's problems and constraints, and to formulate strategies for enabling the industry's development. Such a Consultation must be broad-based, involving all the key players in the African steel industry i.e. producers, technologists, financiers, policy makers and international development institutions.

24. The need for closer cooperation in the iron and steel sector in areas like energy and raw materials consumption, reduction, rehabilitation strategies and cooperation in human resource development was again highlighted as a fundamental step towards the sustainable development of the sector at the First Workshop on Steel Plants and Rolling Mill Rehabilitation for countries of the Preferential Trade Area for Eastern and Southern African States (PTA) held at Lusaka, Zambia, in October 1991.

25. In the frame of its programme for economic cooperation among developing countries, UNIDO has been active in establishing a more coordinated approach for the identification and solution of issues constraining the sustainable development of the iron and steel industry in Africa. Within this framework, and in cooperation with the Arab Iron and Steel Union, UNIDO provided assistance in the creation in December 1991 of the African Iron and Steel Association (AISA). This institution, based at Lagos, Nigeria, will enhance inter-alia the cooperation between plants in the application of better production techniques, dissemination of technological information and introduction of energy consumption and pollution reduction techniques. The Consultation will therefore further strengthen the role of AISA and it is expected that the Association will be a key actor in the implementation of the recommendations of the regional Consultation.

26. In view of the above and without prejudice to the conclusions and recommendations that might be reached by the preparatory activities, it is suggested that the following issues could be considered during the Consultation:

(a) Role of the iron and steel industry in Africa in the context of industrial, technological and economic development;

(b) Government policies for the sector and its linkage to the development of the capital goods industry;

(c) Rehabilitation strategies and possibilities of regional cooperation;

(d) Promotion of production technologies compatible with environmental management policies and sustainable economic growth.

Regional Consultation on the leather and leather products industry in Asia and the Pacific

27. The First Consultation on the Leather and Leather Products Industry (1977) 3/ analysed the prospects for the growth of the sector and the measures needed to ensure optimum use of existing capacity for tanning and for the production of leather footwear and other leather products. The Second Consultation on the Leather and Leather Products Industry, 4/ held in 1980, examined the measures to improve the world-wide availability of raw hides and skins and problems and prospects for marketing of leather products in developing countries and recommended an International Hides and Skins Development Scheme and the establishment of a checklist for contractual agreements. The Third Consultation, 5/ held in 1984, focused on the measures to maximize the potential of the sector in developing countries and on the measures to facilitate the production and acquisition of tanning chemicals and footwear auxiliaries in developing countries. It recommended among others that UNIDO, through its Leather and Leather Products Industry Panel, should monitor the progress made towards the implementation of the recommendations agreed at the Consultations. The Panel on the Leather and Leather Products Industry at its tenth session held at Madras, India, from 4 to 8 November 1991, recommended that a Consultation meeting should be organized, preferably in South-East Asia. 6/

28. Since the early seventies, the expansion of the leather and leather products industry took place mainly in the developing countries. While the developed countries (with the exception of Italy) reduced their tanning activities and moved towards the more upstream products, certain developing countries increased their production dramatically. The reason behind this move was that certain low-wage countries, which additionally did not have to meet the stringent environmental regulations of the developed world, had a clear cost advantage in making downscale leather products. The growth in output of light bovine leather reflects the expansion of tanning activities in developing countries. While world production rose nearly 50 per cent between 1968-1971 and 1987,* developing countries nearly doubled their production, lifting their share in tanning this type of leather from one third to over 45 per cent. The fastest developments took place in Latin America and in Asia and the Pacific, together accounting for three quarters of the developing countries' output.

29. The rapid expansion of tanning activities in Asia and the Pacific was accompanied by a serious increase in pollution. The technical solution to the problem of pollution is known: there exists a wide range of low-waste processing options. However, low-waste technologies require better skilled personnel and closer technical control than conventional processing, and properly trained staff is lacking. Another problem faced by the industry is the pollutant discharge standards. The tanners are under pressure to put up a complete treatment system and meet all discharge limitations at once, instead of implementing the standards step-by-step. Advice is needed both at the entrepreneur and the government level to introduce standards without imposing a financial burden the producers cannot afford. Joint

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* Statistics pertaining to the leather and leather products industry were obtained from World statistical compendium for raw hides and skins, leather and leather footwear 1968-1987 (1989) (Food and Agriculture Organization of the United Nations publication).

effluent treatment plants are very often the best solution. However, in view of the lack of experience in designing and operating such systems, the installation of demonstration plants is very much needed.

30. During the seventies and eighties, developing countries entered aggressively the world market of shoes and also became top volume producers of leather garments. When leather athletic shoes became fashionable, the first production places were occupied by Taiwan Province and the Republic of Korea. Presently more countries of Asia - China, India, Indonesia, Pakistan and Thailand - are becoming exporters of final leather goods. While leather shoe production in developed countries as a whole stagnated between 1968-1971 and 1987, it rose by 120 per cent in developing countries bringing the developing countries' share in global output to 40 per cent. As in the case of leather as a raw material, advances in the leather shoe industry were most marked in Latin America and particularly in the Asia and Pacific region. The same holds true for international trade. Shipments from developing countries rose from 8 per cent to 40 per cent of the world total.

31. The more advanced developing countries are faced with the same problem as developed countries 15 years before: to upgrade the products at home. Upgrading products is not simply a manufacturing problem. It is essentially a marketing problem of gathering information on what is trendy, supplying sellers just-in-time and meeting the quality requirements. It is also a problem of overcoming barriers of entry and of access to suppliers of fine leathers.

32. The Consultation would be in line with the main objectives of the medium-term plan 1992-1997 (PBC.7/17) in that it would contribute to the dissemination of knowledge and experience in the selection of cleaner technologies, the establishment of emission standards and the management of effluents in the leather industry. It would also increase the awareness of the Asian countries of new technological changes in the sector. UNIDO has been providing technical assistance to various developing countries, including the Regional Africa Hides and Skins, Leather and Leather Products Improvement Scheme which covers the whole chain of activities from hides and skins improvement process to marketing of finished products. A Sectoral Programme of Pollution Control in the Tanning Industry in the South-East Asia region was launched recently.

33. In view of the above and without prejudice to the conclusions and recommendations that might be reached by the preparatory activities, it is suggested that the following issues could be considered during the Consultation:

(a) Promotion of the introduction of low-waste processing methods including utilization of by-products in the tanning industry in order to achieve ecologically sustainable development;

(b) Measures to upgrade footwear and other leather products with special emphasis on quality control, marketing problems and firm strategy;

(c) Application of modern technology such as CAD/CAM in footwear and leather products industries in developing countries.

Regional Consultation on downstream petrochemical industries in Latin America and the Caribbean

34. In recent times the petrochemical industry has created synthetic products which have provided substitutes for a number of conventional materials such as metal, natural fibre, rubber, glass, wood and paper. The synthetic materials have largely outclassed traditional materials in both performance and economy.

35. The primary source of petrochemical products is the intermediate petrochemicals (also called monomers). The conversion of bulk petrochemical products into consumer items such as plastic, rubber, fibres and industrial chemicals, is made through downstream petrochemical processing industries. Products of downstream industries find wide application in sectors such as textile, construction, agriculture, food processing, health care, automotive as well as many other sectors of national economies in Latin America and the Caribbean.

36. The share of developing countries in world consumption of petrochemicals was around 20 per cent in 1990,* with a higher rate of growth and consumption of petrochemical products expected by the turn of the century. Petrochemicals play an increasingly equally important role in the economic and social development of Latin American countries. For instance, in Mexico and Venezuela they are an important source of export earnings. Their rate of growth exceeds the general rate of growth of the gross national product several times in some countries. Investment in the sector in spite of economic hardships goes unabated.

37. The stage of development of this industry in the region varies from one country to another. In some countries (Brazil and Mexico) a certain degree of maturity has been attained in a number of petrochemical products. Sophisticated fine petrochemicals are being locally produced to serve the pharmaceutical, pesticide, electronic and other engineering industries. In other countries such as Argentina, Bolivia, Chile, Colombia and Peru, large quantities of basic and intermediate petrochemicals are being produced for processing in the local or export markets. On the other hand, a number of other smaller countries in Central America ano the Caribbean have scant prospects to establish petrochemical plants. However, they need the products of this industry for the development of their economies. Downstream petrochemical processing industries would be an ideal area for investment in these countries.

38. A new phase of expansion and government deregulation in petrochemicals in some countries of the region will make Latin America an important

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* Statistics pertaining to the petrochemical industry were obtained from Chemical Marketing Reporter, Vol. 240, No. 22, 25 November 1991; Oil and Gas Journal, Vol. 85, No. 15, 15 April 1991; Economic Commission for Europe, Report of the 1991 eighth meeting of Rapporteurs on Olefins, Statistical Tables (CHEM/R.166/Add.1 and Add.2).

global centre for petrochemicals production. The studies show that Brazil is expected to add at least 1.5 million tons of gross petrochemicals capacity by 1996. Mexico would increase its petrochemicals capacity by around 2 million tons by mid-1990s. The biggest increase is expected in Venezuela: by 1996, Venezuela's petrochemicals production will rise from 1.6 million tons to 8 million tons. Over 40 joint ventures in petrochemicals are planned in the country in the same time frame. In Argentina, government studies have identified more than $3 billion likely investment in the country's petrochemical sector in the 1990s in addition to the $450 million investment in projects under way, which will boost the value of petrochemical exports considerably.

39. Petrochemical products are among the industrial products cited in the Andean Pact Trade and Economic Agreements. Some steps have already been taken in this regard towards the harmonization of investment, production and trade policy in this sector.

40. The diversity in the level of development and hence the variety of experience acquired in the development of these industries in the various countries of the region provides an excellent prerequisite for cooperation among petrochemical producers, investors, technological innovators, industrial consumers and special equipment manufacturers in the region.

41. The three previous Consultations on the petrochemical industry were held in 1979, 1981, and 1985 7/ and the two Consultation meetings planned to be convened during the biennium 1992-1993 have concentrated on primary and intermediate petrochemicals. Although these are very important components in the chain of petrochemical development, they concern a rather limited number of countries that are rich in hydrocarbon and financial resources. The downstream petrochemical industry is vital to all countries of the world, irrespective of the level of development and availability of natural resources. A regional Consultation on this subject during the 1994-1995 biennium would be a timely contribution to the industrial development of Latin American and Caribbean countries. The Consultation would be complementary to the priorities in the Regional Cooperation Programme for the Industrial Recovery of Latin America and the Caribbean since downstream petrochemical industries support technological advances in the electronics industry, capital goods and the development of new materials. It would also respond to the priorities set in the medium-term plan, 1992-1997 (PBC.7/17) since it would provide an important vehicle for technology transfer and development, play a role in environmental protection, focus on the techniques of plastic, fibre and rubber production and be highly conducive to economic cooperation among developing countries and subregional cooperation as well as the pooling of financial and technological resources.

42. The broad objectives of the proposed regional Consultation for Latin America and the Caribbean would include the following:

(a) Analyse the main trends of the petrochemical industry in the context of the restructuring process taking place in the world economy;

(b) Study the prospects for the petrochemical industry in the Latin American and Caribbean region;

(c) Propose ways and means to strengthen regional and intraregional cooperation in the fields of: commercial agreements in marketing and market related fields, production complementarities, research and development, technical assistance, exchange of economic, financial and technical information;

(d) Encourage bilateral and multilateral negotiations leading to new forms of regional cooperation;

(e) Promote appropriate forms of financial mechanisms to encourage investment projects among Latin American and Caribbean countries in the petrochemical and related industries.

43. Without prejudice to the conclusions and recommendations that might be reached by the preparatory activities, it is suggested that the following issues could be considered at the regional Consultation:

(a) The integrated development of the petrochemical industry and the role of the downstream petrochemical-processing industry;

(b) Alternative routes for the development of downstream petrochemical-processing industries in response to specific economic and social conditions and objectives of Latin American and Caribbean countries;

(c) Subregional and regional cooperation in the development of the petrochemical industry in terms of both horizontal and vertical integration;

(d) Subregional and regional cooperation on pollution control in the downstream petrochemical industry with specific reference to recycling and biodegradability;

(e) Cooperation in developing national/regional capability for the manufacture of machinery, equipment and tools required by the downstream petrochemical-processing industry;

(f) Policy guidelines to be adopted by Latin American and Caribbean countries for the development of downstream petrochemical-processing industries which acts as a catalyst in overall economic and social development.

Consultation on consultancy engineering services

44. The Consultation was approved for the 1992-1993 biennium in decision IDB.6/Dec.5, but it was necessary to postpone it in order to accommodate the regional Consultation on the petrochemical industry in the Arab countries, originally scheduled for 1991 but postponed to 1992 because of the situation in the Gulf.

This adjustment was approved in decision IDB.8/Dec.33. Therefore it is proposed to hold this Consultation in the biennium 1994-1995. For details on the proposa see paragraphs 51 to 59 of document IDB.6/6.

Consultation on environmental management/ cleaner technologies in the metallurgical industry

45. The Conference on Ecologically Sustainable Industrial Development (ESID), organized by UNIDO at ministerial level and held at Copenhagen, Denmark, from 14 to 18 October 1991, 8/ discussed, inter alia, the role that UNIDO could play in reducing environmental problems and enhancing industrial efficiency by assisting developing countries in achieving the ecologically sustainable development of their different industrial sectors.

46. At the Conference it was stated that one of the major directions for possible UNIDO action in achieving ESID would be to assist the developing countries in integrating environmental considerations into their industrial strategies and policies at sectoral as well as at subsectoral level.

47. In the frame of the above Conference, technical symposiums were held on five industrial subsectors: alumina, leather, phosphate, fertilizers, plastic and plastic waste recycling and pulp paper.

48. Apart from being an instrument for the exchange of views on major issues relating to ecologically sustainable industrial development for the specific subsectors, the symposiums suggested important roles for different actors.

49. A global Consultation on specific environmental issues connected with one of the pillars of the industrialization process such as the metallurgical sector, specifically iron and steel, the aluminium and the copper production industry would be an appropriate follow-up to the ESID Conference.

50. In fact the metallurgical industry must contend with a wide range of environmental problems. It is one of the major sources of air, water and surface pollution. The gaseous, liquid and solid wastes arising from metal-producing and metal-finishing plants are difficult to trap, isolate and process at sufficiently low cost. The large variety of metallurgical processes, the size of the overall operation and the extensive amount of resources involved compound, inter alia, the magnitude of the problem.

51. For instance, for the production of a ton of crude steel, 1.7 tons of iron ore and 200-300m^3 of water are required; 50 kg of hazardous dust and about 450 kg of solid waste are generated. Similarly, the aluminium production generates extensive amounts of gases which have a high content of fluoride, carbon monoxide and alumina dust. Between 6 and 8 tons of red mud is discharged during the production of 1 ton of aluminium.*

52. In the developing countries, the environmental impact generated by the sector raises serious concern. Limitations of financial resources in many cases reduce the ability of the actors to initiate urgent measures for rehabilitation and modernization of existing plants. As a consequence, a large number of the metallurgical plants in developing countries are operated with obsolete technologies and equipment that are inefficient in terms of resource utilization, and result in a waste of valuable raw materials.

53. Nevertheless, in some plants, steps have been taken to reduce the negative impact of the pollution. Environment programmes have been included as an integral component of the metallurgical production. Many metal producers have realized that extensive improvements in reducing environmental problems can be achieved without incurring large capital investments. Pollution prevention programmes, waste minimization activities, better managerial organization of the plant and better housekeeping enable the reduction of waste products and improve the utilization of raw materials and energy. Due to the volume of resources utilized, the savings in metal and energy improve directly the productivity and therefore the competitiveness of the plant.

54. In cooperation with the regional associations of metal producers from Asia, Arab countries, Latin America and Europe, UNIDO has already initiated activities aimed at the development of regional collective environmental programmes as a cost-effective way to reduce the environmental impact of the sector in those regions with limited sources of financing.

55. The Latin American Institute of Iron and Steel, under the initiative of UNIDO, established a regional committee for environment that will coordinate the activities in the field of environment among metal producers of the region. National metal associations from Argentina, Brazil, Chile, Mexico and Venezuela are directly involved in the committee.

56. A similar activity is being developed with the South-East Asian Iron and Steel Institute. A regional conference on environmental issues entitled "Environmental control and energy-saving practice within the steel industry" will be held in Japan in April 1993. The National Iron and Steel Associations from the following countries will participate in this programme: Australia, Indonesia, Japan, Malaysia, the Philippines, the Republic of Korea, Singapore, Taiwan Province, Thailand and Viet Nam.

57. The programme with the Arab Iron and Steel Union is expected to start during the meeting entitled "Towards future development of steel industries in Arab countries" scheduled to be held in October 1992.

58. Furthermore, cooperative mechanisms have been established by UNIDO in order to ensure that the outcome from the activities in the field of environment in the metallurgical sector being conducted by other international organizations, such as the United Nations Environment Programme (UNEP), the United Nations Economic Commission for Europe (Seminar on Ecology and Metallurgy scheduled for June 1993 in Ukraine) and the Organisation for Economic Cooperation and

* Source: Aluminium Smelter Technology, A Pure and Applied Approach. K. GRJOTHEIM & WELCH, Düsseldorf, 1989.

Development, and by regional and world non-ferrous institutions (European Aluminium Association, International Primary Aluminium Institute, International Copper Association), will serve as preparatory steps towards the global Consultation.

59. In order to capitalize on the world-wide experience available in environment management in the metallurgical sector, UNIDO will coordinate and ensure an extensive participation of international and key regional organizations. In this context, a global Consultation will serve as a forum for discussions and adoption of concrete recommendations on relevant environmental issues in the metallurgical sector with the view to enhancing the dissemination of available expertise to all the parties concerned with environmental management in the sector, i.e. metal producers, government institutions and financing organizations.

60. In view of the above and without prejudice to the conclusions and recommendations that might be reached by the preparatory expert group meetings, it is suggested that the following issues could be considered during the Consultation:

(a) Policies and measures required for promoting the application of cleaner technologies;

(b) Introduction of auditing programmes including "good housekeeping" necessary for achieving efficient environmentally-oriented management control at plant level;

(c) Development of waste minimization programmes for achieving safer environmental conditions.

II. ACTION REQUIRED OF THE BOARD

61. The Board is invited to approve the programme of Consultations for the biennium 1994-1995 as outlined in chapter I above.

Notes

1/ For the report of the Consultation see document ID/380.

2/ CAMI.10/14/Rev.1, para. 51.

3/ For the report of the Consultation see ID/WG.258/9.

4/ For the report of the Consultation see ID/255.

5/ For the report of the Panel see ID/318.

6/ ID/WG.520/8(SPEC.), para. 100.

7/ For the report of the Consultations see documents ID/277, ID/273 and ID/340, respectively.

8/ For the report of the Conference see GC.4/25/Add.1.